



NOTIFICATION OF TSCA SELF-IMPLEMENTING CLEAN UP OF PCBS

**MBTA Tire Garage
21 Water Street
Cambridge, Massachusetts**

**Prepared For: Massachusetts Bay Transportation
Authority**

Prepared By: Kleinfelder

Contract No. E22PS02

Date: 9/14/2012





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APPENDICES

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Appendix C	Supplemental Building Materials Survey (Nover-Armstrong)
Appendix D	MBTA Certification



1 INTRODUCTION

Kleinfelder, on behalf of the HDR/Gilbane Joint Venture, has prepared this Self-Implementing Cleanup Plan (SIP) for use by the Massachusetts Bay Transportation Authority (MBTA) in conducting site remediation tasks prior to the demolition of an MBTA-owned building located at 21 Water Street, Cambridge, Massachusetts. The demolition is to be conducted as part of the MBTA's Green Line Extension (GLX) Project. This Notification has been prepared in accordance with the Toxic Substances Control Act (TSCA) requirements as outlined in 40 CFR 761.61(a).

During the fall of 2011, Nover-Armstrong Associates, Inc. (Nover-Armstrong), as a subcontractor to Kleinfelder, completed an Initial Hazardous Materials Survey of the 21 Water Street building. During the survey, Nover-Armstrong observed wall mortar and floor, exterior window and wall caulking that were considered to potentially contain polychlorinated biphenyls (PCBs). Samples collected by Nover-Armstrong indicated PCBs at concentrations ranging from 110,000 parts per million (ppm) to 993,000 ppm in the window and wall caulking, with lower concentrations detected in the floor caulking and mortar associated with the concrete walls. Based on these results, Nover-Armstrong conducted additional sampling of the concrete masonry units (CMU) surrounding the windows of the facility, of concrete and mortar surrounding impacted floor and wall samples, and confirmatory sampling of floor and wall caulking. Nover-Armstrong's reports are included as Appendices A-C.

Based on the results of this sampling, exterior window and interior and exterior wall caulking at the 21 Water Street building contains elevated concentrations of PCBs, which will require these materials to be disposed of as a PCB bulk product waste during building demolition. Floor caulking contains PCBs but at concentrations which allow for its classification as a federally exempt PCB waste. CMU surrounding facility windows and other building materials have not been significantly impacted by PCBs, but CMU within 6 inches of material identified as bulk waste will be disposed of as PCB remediation waste.

The goal of the Site Remediation detailed in this SIP is to remove all caulking that is classified as PCB Bulk Product Wastes from the 21 Water Street building, prior to the demolition of the building. A remedial approach has been developed for this project to achieve compliance with the remedial goals as stated and is presented herein.

The MBTA will have contract oversight for the work contained in this SIP and, therefore, will be responsible for the cleanup. Correspondences of final approvals or actions should be addressed to:

Ms. Janis Kearney
Massachusetts Bay Transportation Authority
Department of Environmental Affairs
10 Park Plaza, Room 6720
Boston, Massachusetts 02116
(617) 222-1592



1.1 SITE DESCRIPTION AND LOCATION

The Subject Site is located at 21 Water Street in Cambridge, Massachusetts. The location is shown on Figure 1-2- Site Location, in Appendix B. The Site currently operates as the MBTA's Tire Garage, and is developed with a single, 11,914 square foot, slab on grade CMU block building with a metal frame and flat roof. Two full size overhead doors provide access for larger vehicles. A tire warranty office is located on the ground floor; additional administrative space and the MBTA Key Shop are located in an upstairs balcony on the western side of the building. A kitchen/break room, furnace room, and a compressor room are also located on the ground floor. The remainder of the building is open garage space for tire maintenance. The building has been operated by MBTA for approximately 6 years. Before the MBTA it was operated as a vehicle maintenance facility by others.

The Site is bound by Water Street, a part public part private right of way, to the west, by the Glass Factory Condominiums (169 Monsignor Obrien Highway) to the south, by an MBTA owned commuter parking lot to the east, and by vacant land owned by Northpoint LLC to the north. The Site property is also identified by the address 183 Monsignor McGrath O'Brien Highway, and by the City of Cambridge Assessor as Map 1, Block A, Lot 38.

1.2 DESCRIPTION OF PLANNED ACTIVITIES

The Green Line Extension Project is an initiative of the Massachusetts Department of Transportation (MassDOT) and MBTA. The project will extend existing MBTA Green Line service from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford. The 21 Water Street building is planned for demolition as part of the GLX project. Demolition is proposed for Spring/Summer 2013, after which the building will be used as a construction laydown area during the construction of the GLX Project. The majority of the property will be later developed as a busway associated with the new Lechmere T Station; a portion of the property will be used as a public roadway.

2 SAMPLING PROGRAM DESCRIPTION

2.1 INITIAL HAZARDOUS MATERIALS SURVEY (NOVEMBER 2011)

On November 2, 2011, as part of an initial pre-demolition hazardous materials survey of the 21 Water Street building, Nover-Armstrong, under contract to Kleinfelder, inspected building materials for the potential presence of PCBs. Visual inspection revealed mortar and floor, window and wall caulking that were considered potential PCB sources. Building materials were observed to be in poor to good condition, with areas of isolated damage. Nover-Armstrong collected eleven samples, including four floor caulking samples, three wall mortar samples (one painted and two unpainted), one sample of painted wall caulking, and three samples of the window caulking. Samples were submitted to Alpha Analytical Inc. (Alpha) of Westborough, Massachusetts for analysis of PCBs via EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method).

PCBs were detected above laboratory reporting limits in the window and wall caulking samples analyzed at concentrations ranging from 110,000 mg/kg to 993,000 mg/kg. Lower PCB concentrations, ranging from 0.172 to 40.4 mg/kg were detected in the floor caulking and mortar associated with the concrete walls. Results are presented on Table 1 – Summary of 11/02/2011 Building Materials Analytical Results (for PCBs), included in Nover-Armstrong's report (Appendix A). The predominant PCB detected was Aroclor 1260. Lower concentrations of Aroclor 1254 were also detected in the floor caulking samples.

A review of the analytical report provided by Alpha for the 11/2/2011 sampling revealed that PCBs were detected in the Method Blank sample at 16.2 mg/kg. According to Alpha, the Method Blank was analyzed as part of the sample batch. During Soxhlet extraction and/or during the blow down process, the Method Blank, and potentially some of the building material samples, was contaminated by the window caulking samples, which contained higher PCB concentrations and were run at the beginning of the batch. Therefore, according to Alpha, samples containing less than 16 mg/kg PCBs, including FLOOR-1, FLOOR-3, FLOOR 4, WALL-1 and WALL-4, may not have contained PCBs, or may have contained PCBs at concentrations lower than indicated by the laboratory report.

Based on the results of the initial hazardous materials building survey, additional sampling was required to confirm the preliminary results, determine if materials reported as containing PCBs at less than 16 mg/kg actually contained PCBs, and determine if CMU surrounding the PCB caulking was impacted by PCBs.

A complete copy of Nover-Armstrong's initial hazardous materials survey report, including figures showing sample locations and complete analytical reports, is included as Appendix A.

2.2 SITE-SPECIFIC QAPP ADDENDUM A1, REVISION 1.2, JUNE 2012 IMPLEMENTATION

Based on the findings of the initial hazardous materials building survey, Nover-Armstrong, under contract to Kleinfelder, completed a Site-Specific QAPP Addendum A1, dated June 2012. The QAPP



addendum documented all proposed sampling procedures, laboratory analytical methods, equipment necessary to complete the sampling procedures, quality assurance/quality control measures to be taken, and data assessment protocols in place for the supplemental analysis of PCBs in CMU surrounding the windows of the facility and in building materials (concrete, caulking and mortar) surrounding impacted floor and wall samples. The goal of the sampling was to identify potential PCB impacts from window caulking, floor caulking, wall caulking, and/or wall mortar leaching into building materials adjacent to the previously-identified PCB-impacted areas and to assess the limits of any PCB contamination identified. The QAPP is included as Appendix B.

2.3 SUPPLEMENTAL BUILDING MATERIALS SURVEY

A supplemental building materials survey was completed by Nover-Armstrong, under contract to Kleinfelder, on July 11 through 13 and July 17, 2012. See Appendix C for the results of this survey, including figures and photographs.

2.3.1 CMU SURROUNDING WINDOWS

Between July 11 and July 13, 2012, Nover-Armstrong collected samples from concrete CMUs adjacent to ten of the facility's forty windows. Each window was identified as one sample group. Each group was comprised of eight grab sampling points. Samples were obtained from all four sides of each window at a distance from the window equaling approximately one-half of the CMU length (6 inches). Additional samples were collected from the terminus of one cracked area originating at a window on an exterior wall on each side of the building (four total). The concrete samples were obtained following the guidance provided in the USEPA Region 1 *Standard Operating Procedure for Sampling Porous Surface for Polychlorinated Biphenyls (PCBs)*, Revision 4 (May 2011), *EIASOP_POROUSSAMPLING* and in accordance with the Code of Federal Regulations (CFR) 761. This guidance was provided within the Standard Operating Procedures appendix of the QAPP, attached to this report as Appendix B.

A rotary impact hammer equipped with a one-inch diameter carbide drill bit was used to generate a fine concrete powder, which was collected into containers provided by Alpha. Samples were collected at approximately one-inch intervals and four to eight holes were required to obtain the required amount of concrete powder for laboratory quality assurance purposes. A total of 80 concrete grab samples were collected from around the windows and 4 were collected from building cracks proximate to select windows. Six additional duplicate samples were also collected. The samples were submitted to Alpha for analysis of PCBs by EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method).

Disposable sampling equipment was discarded after use and was not reused. All non-disposable sampling equipment was decontaminated after each sample was collected according to the guidelines for decontamination provided in the *Standard Operating Procedure for Sampling Porous Surface for Polychlorinated Biphenyls (PCBs)*, Revision 4 (May 2011), *EIASOP_POROUSSAMPLING* guidance. All rinse liquids generated during the decontamination process were stored in properly labeled 55 gallon drums, pending laboratory analytical results. Six Equipment Blank samples were collected and submitted to Alpha for analysis for PCBs.

2.3.2 BUILDING MATERIALS NOT SURROUNDING WINDOWS

On July 17, 2012, Nover-Armstrong collected additional samples surrounding each of four interior and/or exterior building material sampling locations that were not associated with window caulking, but were identified during the November 2011 Initial Hazardous Materials Survey as potentially containing PCBs. These samples were identified as WALL-1 (interior), WALL-3 (interior), WALL-4 (exterior), and FLOOR-2 (interior). The samples were obtained from all four sides of each sampling location at a vertical distance of approximately 12 inches and at a horizontal distance of approximately 6 inches from the original November 2011 samples. The building materials consisted of caulking, concrete, and mortar, depending on the sample location. The building material samples were obtained following the guidance provided in the USEPA Region 1 *Standard Operating Procedure for Sampling Porous Surface for PCBs, Revision 4 (May 2011, EIASOP_POROUSSAMPLING* and in accordance with 40 CFR 761.

Concrete and mortar samples were collected as described in section 2.3.1. Caulking samples were collected using a chisel and sharp knife to generate representative samples. Samples were submitted to Alpha for analysis of PCBs by EPA Method SW 846 3540C/8082 (Soxhlet Extraction Method).

2.3.3 SAMPLING RESULTS

Complete sampling results, including laboratory analytical reports, summary tables, and a data quality and usability evaluation, are included in Nover-Armstrong's Supplemental Building Materials Survey, attached to this report as Appendix C.

Of the eighty samples collected from CMU surrounding the 21 Water Street building windows, PCBs were detected above laboratory reporting limits, but below 1.0 mg/kg, in 47 samples. Concentrations detected ranged from 0.0381 to 0.5 mg/kg. PCBs were also detected above laboratory reporting limits, but at concentrations of less than 1 mg/kg, in two of the four concrete samples surrounding building cracks (0.0809 mg/kg and 0.368 mg/kg) and in nine of the twelve samples surrounding the previously sampled locations at the interior and exterior building walls and floor (0.0558 mg/kg to 0.992 mg/kg).

PCBs were detected in the floor caulk at 0.651 mg/kg and 1.52 mg/kg. PCBs were detected in the walk caulk at 18,400 mg/kg and 22,500 mg/kg.

2.4 MANAGEMENT CATEGORIES

Based on the results of the 2011 and 2012 building materials surveys:

- Exterior window caulking at the 21 Water Street building contains PCBs at concentrations ranging from 110,000 to 993,000 mg/kg. Three window caulking samples were collected – based on these results, all window caulking from the 21 Water Street building will be presumed to be impacted with PCBs at a concentration of greater than 50 mg/kg and will be managed as PCB Bulk Waste.
- Based on the concentrations of PCBs detected in the window caulking, CMU adjacent to the window caulking, up to a distance of approximately 6", will be presumed to be impacted and will be managed as PCB Remediation Waste.

NOTE



- CMU surrounding the 21 Water Street building windows at a distance of approximately 6 inches contain PCBs below laboratory reporting limits or at concentrations of less than 1 mg/kg. Based on these results, CMU 6 inches and further from the window caulking is not regulated and will be disposed of or recycled as general construction waste.
- CMU surrounding cracks originating at the windows contain PCBs at less than 1 mg/kg and will be managed as general construction waste.
- Wall caulking in the interior of the 21 Water Street building contains PCBs at concentrations ranging from 18,400 mg/kg to 191,000 mg/kg. Based on these results, all interior wall caulking will be presumed to contain PCBs at greater than 50 mg/kg and will be managed as PCB bulk waste.
- Based on the concentrations of PCB detected in the wall caulking, concrete within 6 inches of the wall caulking will be presumed to be impacted with PCBs at greater than 1 mg/kg, but less than 50 mg/kg, and will be managed as PCB Remediation Waste.
- CMU at a distance of 6 inches and greater from the interior wall caulking contains PCBs at less than 1 mg/kg, if at all, and will be managed as unregulated general construction waste.
- Floor caulking in the interior of the 21 Water Street building contained PCBs at less than 50 mg/kg. There was no indication that the total PCB concentration in the caulk had been modified by subsequent activities. Therefore, the floor caulking is considered a Federally Excluded PCB Product.
- Based on the low concentrations of PCBs detected in the 21 Water Street floor caulking, the concrete floor of the building will be managed as general construction waste.
- Based on the results of the CMU sampling, including the analysis of cracks in the exterior building walls, and based on a visual inspection by Nover-Armstrong, there is no indication that soil or ground surfaces in the vicinity of the 21 Water Street building are impacted by PCBs or will require additional sampling for management.

Based on samples collected @ 21 Water St.

No other Sampling done

Don't think cracks are sufficient Sampling for Gols determination + check w/ KT



3 REMEDIATION PROCEDURES

The goal of these building material remediation efforts is to remove all PCB Bulk Product Wastes, and any associated materials classified as PCB Remediation Waste, from the 21 Water Street building prior to demolition. PCB Bulk Product Wastes (caulk) and building materials classified as PCB Remediation Waste will be removed using abatement work practices and engineering controls to limit the potential release of PCB dust and/or debris. No segregation of federally and non-federally regulated PCB wastes will be performed during removal and all PCB impacted material will be removed together. The work will be performed by a specialty contractor utilizing workers afforded appropriate hazard communication training and under the supervision of an appropriately educated and trained third party (Field Inspector) that can validate appropriate removal techniques and confirm thorough removal of identified materials. The contractor and Field Inspector have not yet been selected for the project. The Field Inspector shall be provided by the contractor.

Prior to beginning caulk removal, the contractor will establish exclusion and decontamination zones in accordance with OSHA guidelines. The areas will be taped off and proper signage will be installed to keep other workers or visitors out of the work area. The contractor will use poly sheeting to create decontamination zones as needed to perform work in each area.

At each window location, the window and associated caulk will be removed by cutting the window from the building at the CMU, approximately $\frac{1}{2}$ block length, or six inches, from the window edge. The window and surrounding CMU will then be containerized and transported offsite for appropriate disposal.

Where feasible, at the location of each wall and floor seam identified as containing PCB caulk, the caulking material will be removed by removing the surrounding building material, by cutting with a cut-off saw or similar tool, at a distance of 6 inches from the PCB caulk. The caulk and surrounding material will be containerized and transported offsite for appropriate disposal.

Based on observations during Site sampling by Nover-Armstrong, and based on the results of analysis for the CMU, which indicated that there was not significant migration of PCBs into building materials along cracks noted running from the windows toward the ground, no soil or surface cover remediation will be performed during this project.

3.1 SAFETY AND MONITORING REQUIREMENTS

The abatement work will be performed as described above prior to demolition of the building, but after the building is vacated by its current occupants. It is anticipated that during abatement activities, only abatement workers and related personnel will be in the remediation area. A control area, demarcated with barriers and signs, will be established outside of the regulated/containment areas. Only properly trained personnel associated with the removal and abatement will be allowed within the control area. The Field Inspector will maintain the control area and prevent unauthorized personnel from entering the area. Only those personnel actively working on the removal and abatement actions will be allowed within the regulated/containment area, and then only when equipped with the appropriate Personal Protective Equipment (PPE), which will be



include, but not be limited to, gloves, rubber boots, tyvek suits, half and / or full face respirators (with combined oil/gas and particulate filter cartridges), and safety glasses.

During removal activities, dust monitoring will be performed in the control area immediately outside of the regulated/containment area. Monitoring will be performed for total suspended particulates (TSP) (dust). The background concentration within each control area will be determined prior to remedial actions and a control area background level will be established. If, during the performance of air monitoring during removal, the dust levels outside the regulated/containment area are observed to increase by 20% over the background level determined prior to the remediation, the contractor shall stop work, and inspect and/or reestablish the regulated/containment area and associated engineering controls. The contractor will then decontaminate the control area if it is determined that engineering controls were not functioning properly.

3.2 ENGINEERING CONTROL DESCRIPTIONS

3.2.1 INTERIOR REMEDIATION

Interior remediation procedures are as follows:

- Areas where PCB bulk products will be removed are to be pre-cleaned using HEPA filtered equipment and/or wet methods as appropriate to collect all loose dust and debris which may contain PCB.
- Because PCB remediation will be performed prior to building demolition but after the building is vacated, all movable objects are anticipated to have been removed from the work area prior to the start of work. Fixed objects will be enclosed with one layer of six mil polyethylene sheeting sealed with tape.
- Any openings between the Remediation Area and non-remediation areas will be sealed off with critical barriers consisting of a minimum of one layer of six mil polyethylene sheeting sealed with tape.
- The Contractor shall cover the wall caulking and surrounding CMU to a distance of approximately six-inches with one layer of six mil polyethylene sheeting sealed securely to the surrounding with tape and adhesives.
- The Contractor shall saw-cut the surrounding CMU at a distance of approximately six inches from the caulking in both directions and remove the CMU and caulking intact. The caulking and surrounding CMU will then be containerized and transported offsite for appropriate disposal.
- Signs will be posted outside the enclosure to deter unauthorized personnel from entering the building.
- Removal work practices within the regulated area will be implemented which facilitate the removal of the PCB Bulk Product Waste and associated CMU while also limiting the amount of dust and debris generated.
- All building materials removed during the remediation will be wrapped in polyethylene sheeting and transported to the waste storage area. The poly sheeting will be secured with tape to ensure that dust is not released during the transport; the contractor will be responsible for the remediation of any new releases caused by spillage.

3.2.2 EXTERIOR REMEDIATION

Exterior remediation procedures are as follows:

- The ground adjacent to and beneath the areas where PCB Bulk Product and Remediation Waste will be removed will be protected by the contractor during the remediation activities. Ground surfaces in the regulated area will be covered with two layers of six mil polyethylene sheeting and secured to prevent movement to capture and collect debris generated. The sheeting will extend a minimum of ten feet beyond the building area to be remediated.
- Each window will be sealed on the interior and the exterior with a minimum of one layer of six mil polyethylene sheeting with the edges sealed with tape and adhesive.
- Each window and surrounding CMU will be removed intact to minimize the potential for generation of dust or release of PCB-containing materials.
- Signs will be posted outside the enclosure to deter unauthorized personnel from entering.
- Removal work practices within the regulated containment will be implemented which facilitate the removal of the PCB Bulk Product Waste and associated CMU while also limiting the amount of dust and debris generated.
- All building materials removed during the remediation will be wrapped in polyethylene sheeting and transported to the waste storage area. The poly sheeting will be secured with tape to ensure that no dust is released during the transport and the contractor will be responsible for the remediation of any new releases caused by spillage.

3.3 VERIFICATION SAMPLING FOR BUILDING MATERIALS

Bulk sampling of the substrate material (CMU blocks) was conducted in accordance with Subpart N of the regulations. Samples at a distance of approximately six inches from the location of the PCB Bulk Product (caulk) indicated PCB concentrations less than 1 mg/kg. Building materials within six inches of the caulk will be removed and disposed of together with the PCB Bulk Product. Additional verification sampling is not required.

3.4 WASTE CHARACTERIZATION, TRANSPORT, AND DISPOSAL

Wastes will be pre-characterized to the satisfaction of the selected disposal facility(s) prior to remedial activities. All wastes generated during building remediation activities will be shipped for disposal as combined PCB Remediation and Bulk Product Waste at a TSCA-permitted facility.



**THE HDR/GILBANE TEAM, A JOINT VENTURE
GREEN LINE EXTENSION TECHNICAL REPORT**

All records and documents required by 40 CFR Part 761, including all those records required under Subpart K, will be prepared for and maintained by the MBTA. The records shall be maintained in a centralized location for a minimum of three years and will be available for inspection by representatives of EPA if requested.